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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

TOWN OF ALMONTE

COUNTY OF LANARK

TOWN OF ALMONTE
COUNTY OF LANARK
- 1966

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Report on a water pollution
survey of the town of Almonte in
the county of Lanark.

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THE
ONTARIO WATER RESOURCES
COMMISSION

Report on a
WATER POLLUTION SURVEY

of the
TOWN OF ALMONTE

in the
COUNTY OF LANARK

Division of Sanitary Engineering

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WATER POLLUTION SURVEY

of the

TOWN OF ALMONTE

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Report on a
WATER POLLUTION SURVEY
of the
TOWN OF ALMONTE

INTRODUCTION

On November 23, 24, 1965, a water pollution survey was performed in the Town of Almonte. Surveys of this type are made by the Ontario Water Resources Commission for the purposes of locating and recording existing and potential sources of water pollution. Where these sources are noted, recommendations concerning their abatement are made to the parties concerned.

In this report, sample results obtained during other surveys conducted by the OWRC are also utilized. The appendices to the report include a tabulation of the sample results, and a map of the town showing the sample point locations.

OFFICIALS CONTACTED

The assistance received from the following officials is gratefully acknowledged.

Mr. R. J. France, Clerk, Town of Almonte;
Mr. A. Buffan, Works Superintendent, Town of Almonte;
Dr. R. K. Bach, Medical Officer of Health,
Town of Almonte.

RECOMMENDATIONS OF PREVIOUS REPORT AND ACTION TAKEN

In April 1961, investigations were made at Almonte to determine the adequacy of the municipal sewage disposal works, which at that time consisted of four municipal septic or sedimentation tanks. It was concluded in the report that the effluents from these municipal sewage disposal units were of adverse quality, and it was recommended that the town should proceed with a program for improved treatment of sewage flows.

During 1962, a joint sewage works project between the town and the OWRC was initiated providing for the construction of municipal waste stabilization ponds and associated works for the disposal of sanitary sewage.

TOWN OF ALMONTE

General

The Town of Almonte is located approximately twenty-five miles south-east of the nation's capital at the junction of Highways 29 and 44. According to the 1965 Municipal Directory, Almonte's assessed population is 3,529.

Water Supply

Ground Water is utilized as the municipal water supply source. No treatment is afforded the water which is drawn from four independant wells.

Surface Water Drainage

Surface waters are drained by way of storm sewers, and improved and natural drainage courses to the Mississippi River.

The Mississippi River watershed is an extensive drainage area which has its upper reaches in the Counties of Lennox and Addington, and Frontenac. It becomes more obvious as a definite watercourse where it enters Lanark County. It pursues a north-westerly course to Almonte, and flows some 17 miles further to its mouth at the Ottawa River.

An active storm sewer program was carried out during 1965. Various storm drains, which in some cases carried contaminated flows were connected to the sanitary sewer system in the south-western section of the municipality. The construction of storm sewers to serve the northern section of the municipality has been planned for 1966. Run-off from this area presently reaches the river through natural drainage.

Sewage Disposal

The municipal sewage works system is operated by the Division of Plant Operations of the Commission. The following is a brief description of the sewage works system. Two pumping stations, known as the Island Pumping Station and the Main Pumping Station are utilized. The Main Pumping Station which is rated at 1500 gallons per minute pumps the sewage to the waste

stabilization pond through a 12-inch diameter force main. The waste stabilization pond contains four cells having a total area of 45 acres. Stabilized waste is discharged to the Mississippi River via a submerged 18-inch diameter concrete pipe. A satisfactory effluent for discharge to a watercourse was indicated by the results of the sample collected during the survey.

During the initial operation of the sewage works, considerable mechanical problems were encountered resulting in periodic discharges of raw sewage from the pumping stations to the Mississippi River. At the time of this investigation, such an overflow was occurring from the main pumping station.

Industry

The principal industry in Almonte is the Zephyr Textile Limited plant. Several investigations of the industrial waste disposal procedures employed at this plant had been made by the Division of Industrial Wastes of the Commission during the past. Wastes from the dyeing operations, cooling water, and all sanitary wastes are discharged to the Mississippi River without pre-treatment. The calculated average loading per day of these wastes on the river waters has been included in the appended sample results. It has been recommended that the wastes be segregated providing for the discharge of uncontaminated cooling waters to the Mississippi River and the discharge of industrial and sanitary wastes to the

municipal sanitary sewer system.

The Almonte Dairy Products plant manufactures various dairy products, such as ice cream and sweet condensed milk. Reportedly, all wastes including sanitary wastes and floor drain wastes are discharged to the municipal sanitary sewer system. Cooling waters are discharged by way of a submerged outfall to the Mississippi River. Due to a sewer back-up problem, an emergency overflow has been installed on the waste discharge sewer. There have been complaints of alleged discharging of milk waste from this overflow to the river. According to plant officials, such an overflow has not occurred recently. There was no flow from this outlet during this investigation.

Ice cream is manufactured at Peterson's Ice cream plant. Reportedly, sanitary wastes are drained to the municipal sanitary sewers while the floor drains which would receive milk spillages and wash-up waters are directed to the Mississippi River. The plant was not in operation when visited during this survey. The Strathmore Dairy and the Metcalfe Dairy utilize sub-surface waste disposal methods. However, these plants are no longer engaged in the bottling of fluid milk. The premises are now used as retail sales distribution outlets.

Garbage Disposal

A site located in the Township of Ramsay, just north-west of the town is the garbage disposal area. No problems concerning any effects which this operation may have on water quality have been reported.

Recreation

Considerable use is made of the bathing area in the river located east of the Queen Street bridge. The beach is placarded by the local Medical Officer of Health whenever bacteriological counts make it necessary to consider the water unfit for swimming.

SAMPLING PROCEDURE

Samples were collected from the river and from any evident discharges thereto and submitted to the Ontario Water Resources Commission laboratory for bacteriological examination and sanitary chemical analyses. Seasonal weather conditions prevailed during the survey.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed to determine the quality of the samples collected were biochemical oxygen demand (BOD), solids, and the enumeration of coliform organisms.

Biochemical Oxygen Demand (BOD)

The BOD of sewage, industrial wastes, or polluted waters is the oxygen required during stabilization of the decomposable

organic material by aerobic biochemical action. A 5-day BOD determination with incubation at 20° C is reported. A high BOD is indicative of organic or chemical pollution. The Commission objective for surface water quality is an upper limit of four (4) parts per million (ppm).

Solids

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and dissolved matter in the water. Concentration of suspended solids which indicates the measure of undissolved solids of organic or inorganic nature is generally the most significant of the solids analyses in regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish.

Bacteriological Examination

The Membrane Filter technique is employed to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres (ml) of the sample. The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. The maximum limit of 2,400 coliform organisms per 100 millilitres is the OWRC objective for bacteriological quality of surface water in Ontario.

SAMPLE RESULTS

Generally satisfactory conditions are indicated by the results of the samples collected. Varying coliform counts, all within Commission objectives, were noted in the samples collected from the river.

A slightly high coliform count was noted in the sample collected from the small tributary draining to the Mississippi River at Almonte Street. This tributary receives the discharge from the municipal storm sewer outfall at the foot of Colborne Street. A high coliform count was noted in the sample collected from this storm sewer discharge. However, this result is interpreted with the view that the sample was taken from stagnant water lying in the manhole. The high coliform count noted in the creek flowing to the Mississippi River at Christian Street may be due to a private pollution source.

EXISTING AND POTENTIAL POLLUTION SOURCES

- The overflow of raw sewage from the main pumping station to the Mississippi River appeared to be due to a mechanical difficulty.

- The waste loading from the Zephyr Textile Limited plant on the Mississippi River indicates this to be a source of pollution to the river.

- The floor drain wastes from Peterson's Ice Cream plant are discharged without treatment to the river.

- The emergency overflow from Almonte Dairy Products plant is a potential water pollution source.

SUMMARY

It is evident that the establishment of the municipal sewage works system has eliminated a major water pollution source in the Town of Almonte. Although some operational difficulties have been encountered, the effluent sample collected during the survey indicated a fairly high degree of sewage treatment being provided by the system. Some industrial waste pollution is still evident.

RECOMMENDATIONS

1. Officials of Zephyr Textile Limited should take steps to properly revise their method of industrial and sanitary waste disposal.

2. Consideration should be given by officials of Peterson's Ice Cream plant to securing a connection of its floor drains to the municipal sanitary sewer.

3. Officials of Almonte Dairy Products plant should continue to ensure that there is no discharge of untreated industrial wastes from its emergency outfall.

4. Extreme care should be taken to avoid a discharge of raw sewage from the municipal sewage pumping stations.

Approved by: L. G. South
L. G. South,
Acting District Engineer,
Division of Sanitary Engineering.

Prepared by: M. M. Holy

/mh

WATER POLLUTION SURVEYTOWN OF ALMONTESAMPLE RESULTS

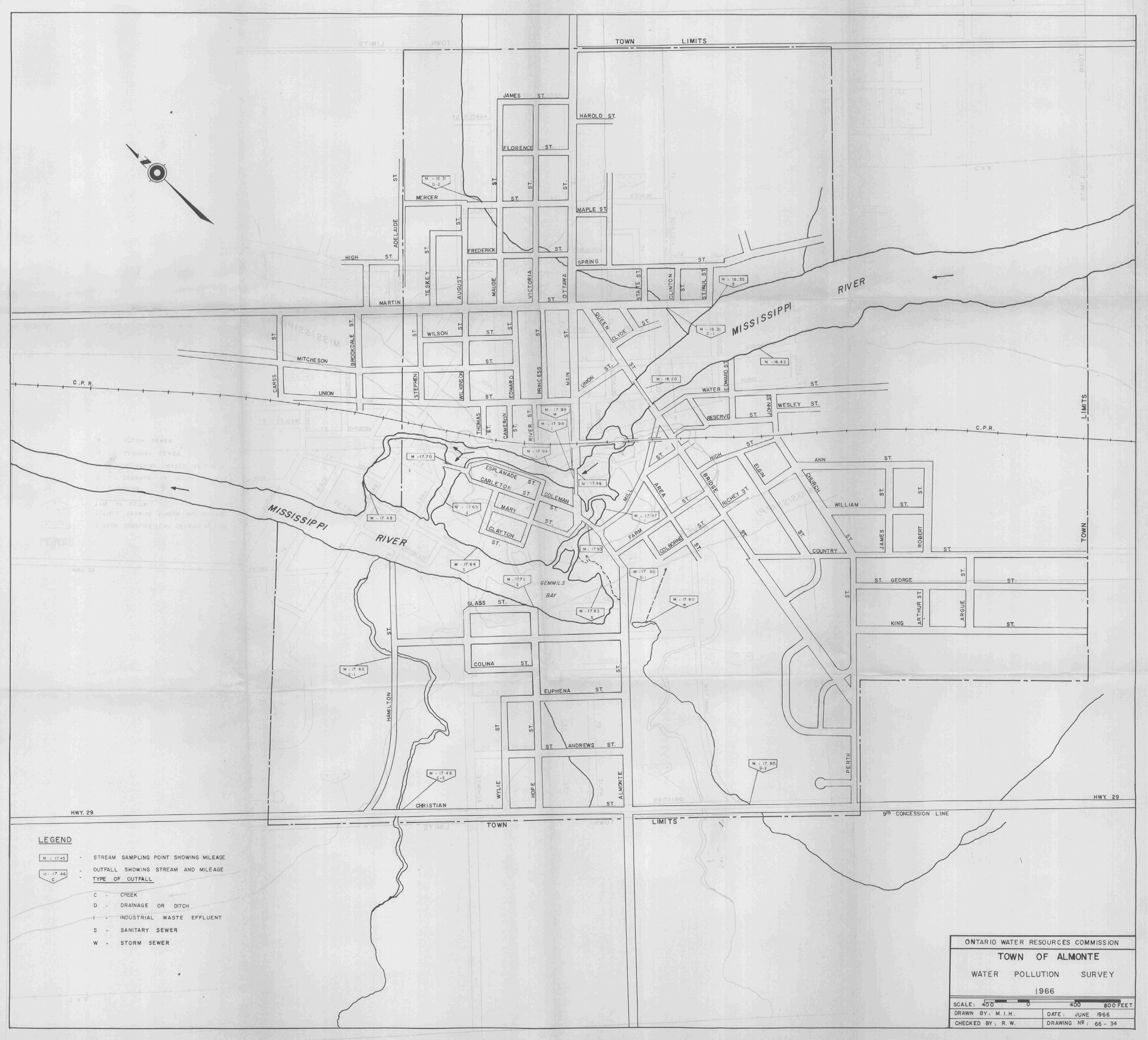
<u>Sample Point No.</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml.</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>		
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>
M. 17.45	Mississippi River down- stream from Almonte	Nov. 24/65	1,400	0.4	152	4	148
M. 17.46 C-1	Creek flowing to Mississippi River at Hamilton Street	Nov. 24/65	1,500	1.7	306	3	303
M. 17.46 C-2	Creek flowing to Mississippi River at Cristian St.(Hwy.29)	Nov. 24/65	160,000	0.2	288	4	284
M. 17.64-S	Overflow from Island pumping station to Mississippi River	Nov. 24/65		NO FLOW			
M. 17.65-I	Industrial waste outfall from Zephyr Textile Ltd. plant to Mississippi River (estimated loading in lbs. per day)	Nov. 24/65		251		26.4	
M. 17.70	Mississippi River at Carleton Street	Nov. 24/65	126	1.0	126	7	119
M. 17.75-S	Overflow from Almonte muni- cipal waste stabilization ponds to Mississippi River (submerged outfall)	Nov. 23/65	6,100	8.6	554	18	536
M. 17.80 D-1	Small tributary draining to Mississippi River at Almonte Street	Nov. 24/65	5,300	0.2	530	8	522

Sample Results - continued - i

<u>Sample Point No.</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml.</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>		
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>
M. 17.80 D-W	Storm sewer outfall to small tributary draining to Mississippi River - (sampled at Colborne St. manhole)	Nov. 23/65	230,000	4.0	852	37	815
M. 17.80 D-2	Above tributary at Christian St.(Hwy. 29)	Nov. 24/65	74	1.2	610	1	609
M. 17.83-S	Overflow to Mississippi River from Main Pumping Station	Nov. 23/65	24,000,000	74	74	64	10
M. 17.93	Mississippi River at Almonte Street bridge	Nov. 24/65	2,000	0.6	122	4	118
M. 17.97-I	Industrial waste outfall to Mississippi River from Peterson's Icecream plant	Nov. 24/65		NO FLOW			
M. 17.94-I	Emergency industrial waste overflow to Mississippi River from Almonte Dairy Products	Nov. 24/65		NO FLOW			
M. 17.98-I	Submerged cooling water out- fall to Mississippi River from Almonte Dairy Products			NO FLOW			
M. 17.98	Mississippi River at Main Street bridge	Nov. 24/65	1,800	3.6	142	4	138

Sample Results - continued ii

<u>Sample Point No.</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml.</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>		
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>
M. 17.98-W	Drain to Mississippi River at Main Street(north-west side)	Nov. 24/65	1,600	1.4	142	4	138
M. 18.2	Mississippi River at Queen Street bridge	Nov. 24/65	214	2.1	138	4	134
M. 18.31 D-1	Ward drain flowing to Mississippi River at Martin Street	Nov. 24/65	108	3.6	446	2	444
M. 18.31 D-2	Above drain at Mercer Street	Nov. 24/65	96	3.0	450	2	448
M. 18.35-S	Sewage pumping station emergency overflow to Mississippi River	Nov. 24/65					
M. 18.43	Mississippi River at Almonte swimming area	Nov. 24/65	166	1.1	130	4	126



M - 17.45

M - 17.46

C

STREAM SAMPLING POINT SHOWING MILEAGE

OUTFALL SHOWING STREAM AND MILEAGE

TYPE OF OUTFALL

C - CREEK

D - DRAINAGE OR DITCH

I - INDUSTRIAL WASTE EFFLUENT

S - SANITARY SEWER

W - STORM SEWER

CHECKED BY : R. W.	DRAWING N ^o : 66 - 34
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